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ABSTRACT

Recent research in achievement has focused on sex differences found in locus of standards, conceptual focus, and expectations for success. To examine the nature of sex differences and their relationship to achievement domains, 439 college students (197 females, 242 males) were asked to write an account of an achievement or failure. They then responded to statements on locus of standards (internal, external), the process or impact focus of their conceptual orientations, and their initial expectations for success (or failure). An analysis of the results revealed significant main effects for domain on both success and failure outcomes. Further, a strong sex difference in initial expectations preceeding failure events was found, with men holding consistently high expectations regardless of achievement domain. Interaction effects of sex and achievement domain observed on locus of standards for success, and initial expectations preceeding failure indicated that women were more responsive to domain differences than were men. Cognitive responses were more readily classified by the nature of the achievement domain than by sex. These findings suggest that elaboration and incorporation of the concept of domain should be included in cognitive models of achievement. (Author/BL)

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SEX AND ACHIEVEMENT DOMAIN:
COGNITIVE PATTERNS OF SUCCESS AND FAILURE

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Abstract

Recent research in achievement has focused on sex differences found in locus of standards, conceptual focus, and expectations for success. This study questioned the universal nature of these sex differences and suggested that domain of achievement is an important factor in shaping cognitive responses to achievement events. While achievement studies have typically used instrumental (mastery) tasks in examining cognitive responses, this study broadened the concept of achievement domain to include personal and interpersonal endeavors. Subjects (N=439) were asked to write an account of an achievement or failure. They then responded to statements on locus of standards (internal-external), the process or impact focus of their conceptual orientations, and their initial expectations for success (or failure). Multivariate analyses revealed significant main effects for domain on both success ($p < .001$) and failure outcomes ($p. < .01$). Subsequent univariate analyses did reveal a strong sex difference in initial expectations preceeding failure events, with men holding consistently high expectations regardless of achievement domain ($p<.0001$). Interaction effects of sex and achievement domain observed on locus of standards for success ($p<.0002$) and initial expectations preceeding failure ($p<.025$) indicated that women were more responsive to domain differences than were men. Possible reasons for women's domain sensitivity are discussed. Discriminant analyses indicated that cognitive responses were more readily classified by the nature of the achievement domain than by sex. Elaboration and incorporation of the concept of domain in cognitive models of achievement is suggested.

Sex and Achievement Domain:
Cognitive Patterns of Success and Failure

Several hypotheses derived from research on sex differences in achievement suggest a pattern whereby women and men seek success in different domains, define their success by different standards, attend to different aspects of the endeavor, and differ in their confidence to achieve success. Recent models of achievement have identified these cognitive factors as critical (Frieze, 1974). The present study questions the universal nature of these sex differences and investigates the possibility that the type of achievement endeavor may constitute a limiting condition on the size and direction of sex differences in locus of standards, conceptual focus, and expectancy. We additionally hypothesized that the nature of the achievement endeavor itself may influence these cognitive patterns independently of sex. We suggest that differential definitions of success, differential attention to aspects of the achivement situation, and differential expectations for success have their roots in terms of the achievement domains typically available to women and men.

Traditional concepts of achievement typically focus on instrumental problem solving, demonstrations of skill, or the competitive acquisition of resources, all involving task mastery. Achievement in the mastery domain is frequently publicly recognized with a clearly defined end-point. It consists of achievements directed at beating, defeating, or triumphing over another person or some aspect of the impersonal environment. These achievements are signified by diplomas, certificates, or other objective criteria of public recognition. Examples would include obtaining a promotion, receiving a grade of A in a course, or beating an opponent in handball. The achievement tasks presented in laboratory studies have been derived from this traditional concept of achievement. Although subjects may be required to demonstrate verbal reasoning

or mathematical insight, the essential characteristics of the tasks are similar and rely on instrumental acts falling within a broad mastery domain. Sex differences in studies involving mastery endeavors have led researchers to conclude that, compared to women, men have internalized standards for success (Veroff, 1969), an impact focus on the outcome rather than the process of achievement (Veroff, 1977), and initially higher expectations of success (Crandall, 1969).

Alternative conceptualizations suggest that affiliative or interpersonal skills and abilities are also domains of achievement and worthy of study (Berndt, Berndt, & Kaiser, 1982; Parsons & Goff, 1980; Spence & Helmreich, 1983; Stein & Bailey, 1973). The concept of achievement domain was introduced by Stein and Bailey (1973), who suggested that motivation to strive for excellence is equal for women and men, but that it is expressed in different domains. Women strive for excellence in the personal-interpersonal sphere while men's achievements are directed towards mastery of instrumental tasks.

In line with Stein and Bailey, we suggest that achievement domains can be classified. The Personal Domain consists of achievements directed primarily towards oneself, such as breaking a bad habit, gaining self-insight, or clarifying personal values. Such endeavors do not primarily involve other people; the criterion for success resides within the mind of the actor and often is part of an on-going process. Whether one succeeds or fails in the personal domain is frequently known only by the actor. The Interpersonal Domain consists of achievements dealing with relationships with other people, such as making friends, being popular and well-liked, or resolving conflict. The interpersonal domain is similar to the personal domain in that the criterion for success is often vague and the outcome is frequently a private matter. The Mastery Domain comprises those activities traditionally identified as achievement, getting a good job, excelling in a sport and so on. The ambiguity frequently found in the personal and interpersonal domains is absent from the mastery domain.

We submit, with Stein and Bailey (1973), that men are more likely to be socialized to achieve in the mastery domain, while women are more likely to be socialized to achieve in the personal and interpersonal domains. If this is true, then men should seek out and define as achievement those situations that are public, objectively defined, and relatively concrete. Women, on the other hand, should be more likely than men to seek out and define as achievement those situations that are relatively private, subjectively defined, and slightly amorphous. The personal and interpersonal domains are closely associated with the feminine role stereotype and women are typically socialized to invest their energies in these areas (French & Lesser, 1964; Lipinski, 1965; Travis, Burnett-Doering, & Reid, 1982; Veroff & Feld, 1970). Women also tend to attribute more importance to affiliative situations than do men (Berndt et al., 1982).

The consequences of achievement in different domains are substantial and have implications for locus of standards, conceptual focus, and initial expectations for success. We propose that cognitive sex differences observed within the mastery domain may be reduced or eliminated when achievement events fall within personal or interpersonal domains. Thus, domain of achievement, rather than gender, will carry the variance in locus of standards, conceptual focus, and expectations.

Locus of Standards

Success may be defined in many ways: by reaching some absolute or publicly acknowledged standard, by virtue of social comparison with the performance of others, or as an instance of a personal best (Frieze, Shomo, & Francis, 1979). Both Crandall (1963) and Veroff (1969) have suggested that women experience a conflict between the desire for social approval and the desire for instrumental mastery. From this perspective, women are likely to be sensitive to the standards and values of others, and thus have an external locus of standards; men are likely to adhere to standards of excellence that are internal and independent of public opinion. Although locus of standards has

far ranging implications for subsequent career development (Battistich, Thompson, Mann, & Perlmutter, 1982; Maracek & Frasch, 1977), the existence and direction of these differences have not been verified beyond laboratory settings.

A conflicting hypothesis concerning sex differences in locus of standards has been proposed by Kipnis (1974) when she argued that women maintain internalized standards for success while men rely on external standards. The rationale for this contention is that women experience a continuous socialization process. They are closely monitored and held accountable for relatively strict standards of conduct, consequently internalizing the values of society. On the other hand, the socialization of men emphasizes peer groups, interdependence training, and interpersonal competition, leading to comparative, external standards of performance.

These conflicting perspectives about sex differences in locus of standards may be profitably re-thought in terms of achievement domain. Achievements in the mastery domain are typically identified by public signs and symbols; thus men who are trained to specialize in mastery endeavors should rely on external or public standards of success. The relatively private and perhaps gossamer achievements associated with personal and interpersonal domains should foster an internal locus among women. To the extent that women and men are initially socialized to strive for excellence in diverse achievement domains, their locus of standards will differ partly because cognitive patterns acquired at an early stage generalize to subsequent activities. We would predict that women would be most internal when achievements involved personal or interpersonal events, while men would be most external when achievements fell within the mastery domain. However, as women participate in mastery events we would expect a shift in locus of standards toward more external criteria. Among men, a complementary shift toward internal standards should be elicited when achievements fall within personal or interpersonal domains.

Conceptual Focus

Veroff (1977) proposed that women and men consistently differ in terms of how they view their achievement endeavors. He hypothesized that women tend to focus on the process of achievement--the planning, preparation, and conduct of the task. Men were hypothesized to focus on the impact or final outcome of their endeavor. Thus, women should be concerned with overall task management, while men should be concerned with the end result. There is limited support for this hypothesis (Parsons & Goff, 1980). In its most general form, the process focus could be summarized by the admonition, It's not whether you win or lose, but how you play the game.[1] A process focus is also compatible with the concept of functional autonomy, whereby participation in an event is sufficient reward in and of itself.

Sex differences in conceptual focus (process-impact) have not been generally verified, and one goal of the study was to provide additional evidence on this point. A possible basis for sex differences in conceptual focus lies in the achievement domain typically available to women and men. Personal and interpersonal domains are less likely to have a clearly defined end-point than the mastery domain. Thus, people who habitually operate within personal or interpersonal domains should be more likely to focus on the process of achievement -- the planning, preparation, effort, and style. Women who are socialized to prefer or are otherwise restricted to personal and interpersonal domains, should generalize the conceptual focus fostered by these activities to other achievements. By similar reasoning, men who invest their energy in the mastery domain should develop a generalized impact focus. Thus, conceptual focus is initially based on habitual achievement activities, but may generalize to other domains. The extent of this hypothesized generalization as opposed to the contemporary effects of domain was an open question.

Expectations

Expectations have long been considered significant for achievement behavior

(Atkinson, 1964; Battle, 1966), and have been related to academic performance (Meece, Parsons, Kaczala, Goff, & Futterman, 1982) and occupational aspirations (Marini & Greenberger, 1978). Several studies have found that women frequently have lower expectations for success than men, and that women in general are not expected to perform as well as men on a variety of tasks (Bar-Tal & Frieze, 1977; Crandall, 1969; Deaux & Emswiller, 1974; Dweck & Bush, 1976; Frieze, 1974; McMahon, 1973; Mortanelli & Hill, 1969; Parsons & Ruble, 1977).

Since achievements in the mastery domain are clear-cut and easily recognized, individuals can choose within that domain goals at which they have a good chance of succeeding based on prior experience. However, the ambiguity attendant on success within the personal or interpersonal domain makes it difficult for one to judge ahead of time whether a goal is difficult or easy to accomplish. The well-established finding that women frequently have lower expectations for success than men is understandable in this context. Generalization probably also is at work here so that confidence within one domain influences expectations associated with other domains.

In summary, we observe that studies of sex differences in achievement have relied almost exclusively on the analysis of instrumental behavior within the mastery domain. We argue, along with Stein and Bailey (1973) and Spence and Helmreich (1983), that nontraditional activities may also be considered forms of achievement striving, particularly for women. Hypothesized sex differences in locus of standards, conceptual focus, and expectations may be better understood if they are examined in the context of achievement domain.

The research which follows is an attempt to address these issues and is organized around three questions. First, do sex stereotypes regarding achievement really exist? Second, to what extent are sex differences influenced or limited by different achievement domains? Finally, is it more accurate to estimate cognitive responses to achievement as a function of sex or achievement domain?

Method

One hundred ninety-seven women and 242 men college students were recruited to take part in the study. Approximately three-fourths were students enrolled in introductory-level psychology and management classes, while the remainder were recruited from residence halls, sororities, and fraternities.

Instrument. A questionnaire was developed to assess the importance of achievement domain on various cognitive aspects of achievement behavior. Page 1 of the questionnaire, labeled "ACHIEVEMENT STUDY", asked subjects to identify something in the past year which was a success (or failure) for them and to write a description in sufficient detail to provide information about important aspects of the event.

Following the account, subjects were asked to categorize the event in terms of one of three achievement domains by checking a space by the appropriate domain. A descriptive sentence was provided to reflect essential aspects of each domain. Personal Domain: The achievement was basically something within myself; my feelings about myself, my understanding of life, the kind of person I am. Interpersonal Domain: The achievement basically involved a change in my relationship with another person (or group of people). We now have a different way of interacting. Mastery Domain: The achievement was basically one that required me to master or control things in my environment, such as, earning good grades, getting a job, saving money or learning a skill.

Page 2 consisted of measurement of locus of standards (internal - external), conceptual focus (process - impact), and initial expectations for success. Measures were obtained on three nine-point Likert-type scales. The extreme ends of each scale were verbally keyed. To ascertain locus of standards, subjects were asked to circle the number on the scale that most closely characterized the criteria or standards they used to identify their endeavor as a success (or failure). The anchors of this scale were "It met my subjective standards for a private sense of success or failure" and "It met

objective standards established for public recognition of success or failure". Conceptual focus was assessed by asking subjects to reflect about what happened and indicate the most important aspects that stood out in memory. The verbal anchors were "the process of trying, working, and striving" at one end, and "the final outcome and the impact it had" at the other end. Expectancy was measured in terms of how the subjects estimated the initial chance for success or failure, ranging from "very skeptical" to "pretty confident" about reaching the goal. In addition, subjects were asked to indicate the extent to which the achievement could be explained in terms of causal attributions [2].

Procedures. Questionnaires were either administered in classroom settings or were submitted individually to students at residence halls and at sororities/fraternities. All instructions regarding the task were written on the questionnaire. Some subjects received a questionnaire asking about a success in the past year while others received one asking about failure. Although subjects responded with only one account, both success and failure questionnaires were distributed in each setting. Subjects responded anonymously, but after the form was completed, participants were requested to indicate their sex on the back of the form.

Results

A total of 439 protocols were obtained. Some subjects (47 men and 16 women) classified their endeavors as falling within two or more domains. These mixed protocols were not included in the main analyses, because the initial hypotheses and predictions concerned only the three distinct achievement domains. The significance of mixed protocols will be discussed later.

Domain Choice. Although a number of protocols were concerned with grades, many accounts extended beyond the events surrounding academic performance. Approximately 30% of the subjects responded with achievement accounts they classified

as falling within personal or interpersonal domains. This level of response was noteworthy, because the questionnaire was clearly titled as an achievement study and might therefore have focused attention on mastery endeavors or traditional accomplishments. The fact that a significant number of subjects responded with personal or interpersonal accounts suggests that subjects experienced and interpreted these events as achievements.

The hypothesis that interpersonal and affiliative concerns are more salient to women than to men was tested by a chi square. Separate analyses were conducted for success and failure. Table 1 contains a frequency count of each sex X domain combination.

The analysis of successful outcomes indicated that proportionately more men (73%) than women (56%) related achievements within the Mastery domain, while proportionately more women (23%) than men (8%) related achievements with the Interpersonal domain, with approximately equal sex distribution for the Personal domain, $X^2 = 8.47$, $p < .02$. No significant differences were found for failure protocols.

Insert Table 1 about here

In preparation for more detailed analysis, multivariate analyses of variance were performed for success and failure outcomes, with sex and domain as independent variables. The dependent variable was based on weighted combined scores for locus of standards, conceptual focus, and expectations. Results from the analysis on success protocols indicated no significant sex differences. However, there was a main effect for domain, F (6, 336) = 3.90, p .001, and an interaction effect of sex and domain, F (6, 336) = 3.78, p < .001. This finding supported the general hypothesis that sex differences were not universal, but instead were shaped by achievement domain. Results for the analysis on failure protocols indicated significant main effects for both sex, F

(3, 181) = 5.85, $p < .001$, and achievement domain, F (6, 360) = 2.92, $p < .01$. There was no sex X domain interaction. The exact nature of these sex differences and the independent impact of domain were investigated through a series of univariate (2 sex x 3 domain) analyses of variance for each cognitive measure.

Sex Differences

Multivariate analysis of successful protocols revealed no significant main effect for the combined measures on locus of standards, conceptual focus, and expectations. This was also the case when sex differences were examined on individual measures.

Multivariate analysis on failure protocols did indicate a significant sex difference. Subsequent univariate analyses on each cognitive measure revealed that the multivariate effect was based primarily on initial expectations for success, F (1, 180) = 15.87, $p < .0001$. Men consistently reported high expectations, across all achievement domains, in spite of the fact that the endeavor ended in failure. No significant sex differences emerged for other cognitive measures. Main effect means are in Table 2. The paucity of main effects for sex raises serious questions about previously hypothesized sex differences in cognitive responses to achievement.

Domain Effects

Multivariate analyses registered main effects for achievement domain for both success and failure. Subsequent univariate analyses conducted separately for each cognitive measure revealed that the domain effect on successful endeavors was based primarily on locus of standards, F (2, 167) = 9.22, $p < .0002$. It was generally the case that internal standards prevailed when subjects recalled personal or interpersonal events, and external standards were adopted for mastery events. There were no other significant effects of domain associated with successful endeavors.

There was also a multivariate effect for domain under conditions of failure. Domain continued to exhibit a main effect on locus of standards similar to that found

with success, $F(2, 180) = 3.00$, $p < .05$. Domain also had an effect on conceptual focus, $F(2, 180) = 2.94$, $p < .05$. The general pattern was that mastery events were usually associated with an impact focus; this was also true to an extent for personal events. However, interpersonal events tended to be recalled in terms of the process of the endeavor, or the step-by-step history of the interaction. There was also a marginally significant effect for domain on expectations, $F(2, 180) = 2.85$, $p < .06$. Mastery events were consistently preceded by high expectations, while expectations were slightly more cautious for personal or interpersonal events. These findings as a group suggest that achievement domain has an independent impact on cognitive measures, especially under failure conditions, where locus of standards, conceptual focus and expectations were influenced.

Table 2 about here

Interactions

A main hypothesis of the study was that achievement domain constituted a limiting condition on the generality of sex differences. It was proposed that sex differences might be reduced or perhaps even reversed as the nature of the achievement domain varied. The multivariate interaction of sex and domain for successful outcomes supported this hypothesis. Univariate analyses were conducted to more clearly specify the features of this interaction.

Under conditions of success, a sex X domain interaction emerged for locus of standards, $F(2, 167) = 8.99$, $p < .0002$. Inspection revealed that men tended to report locus of standards relatively independent of achievement domain, with mean values for men ranging between 4.37 and 4.63 on a nine-point Likert-type scale. Locus of standards among women varied significantly as a function of achievement domain, revealing an internal locus associated with the personal domain (1.76), an intermediate locus on

interpersonal events (3.95), and a relatively external locus for mastery events (5.85). This interaction is illustrated in figure 1.

Figure 1 about here

A significant sex X domain interaction on failure outcomes was also found in expectations, $F(2,180) = 4.13$, $p < .025$. This interaction followed a pattern similar to that found for locus of standards. Men showed very little alteration in their expectations, having a mean expectation of essentially 7.0 for each achievement domain. However, women's expectations varied significantly as a function of domain. Expectations were relatively low for the personal domain (5.31) and the interpersonal domain (5.15), but were essentially as high as men's expectations when the endeavor fell within the mastery domain (6.74). This interaction is illustrated in figure 2.

Interaction effects support the contention that sex differences in cognitive responses to achievement are influenced by domain, particularly regarding locus of standards for success and expectations associated with failure. An interesting feature was the fact that interactions were produced by relatively stable, invariant responses among men in comparison to significant adjustment among cognitions reported by women.

Figure 2 about here

Discriminant Analysis

The relationship of sex and domain to locus of standards, conceptual orientation, and expectations was also investigated by discrimninant analysis. The discriminant format allows a search for patterns based on the joint effects of cognitive variables,

while indicating which cognitive elements are most significant to the pattern. The discriminant format also makes it possible to compare the tightness or consistency of patterns associated with sex to the consistency of patterns associated with domain. The primary hypothesis for discriminant analysis was that information about cognitive responses would lead to more accurate classification in terms of achievement domain than classification in terms of sex. Separate discriminant analyses for sex and domain were conducted on success and failure events, resulting in a total of four analyses.

Achievement Domain. Discriminant analysis on successful events (N=177) revealed that 49% of the protocols were accurately classified in terms of one of the three achievement domains, a significant improvement over the 33% chance level of classification, (X^2, df 6, = 19.03, $p < .01$). The discriminant analysis on failure events (N=189) was also significant (X^2, df 6, = 17.83, $p. < .01$) with 57% of the protocols correctly classified in terms of domain. Thus, cognitive patterns associated with domain of endeavor were more consistent in the recall of failure events than in the case of successful events.

Table 3 presents results of the analysis for domain on success and failure events. Accurate classification cells are on the descending left-right diagonal, while misclassifications are represented in the off-diagonal cells. In cases of success, the personal domain was most easily classified, 59%, with very few errors. The mastery domain was also classified at better than chance levels; however, interpersonal events were frequently misclassified as personal or mastery events. In cases of failure, the personal domain was frequently misclassified into interpersonal or mastery categories, while interpersonal and mastery domains were consistently classified at better than chance levels.

Insert Table 3 about here

Sex. The discriminant analysis for sex on successful events was not significant, indicating that there was no consistent cognitive pattern of achievement for either women or men. The prior probability of accurate classification on sex was 50%, and the discriminant function was accurate in only 53% of the cases. However, the discriminant function on failure was significant, achieving an overall accurate classification for 59% of the cases (X^2, df 4, = 11.71, $p < .001$). The analysis indicated that 61% of the men were accurately classified, but only 57% of the women, suggesting that men exhibited less variation in their cognitive patterns than was the case for women, thus facilitating the more accurate classification of men. The pattern for men appeared to be an external locus of standards, relatively high expectations, and a process orientation. Because women (43%) were often misclassified as men, it is not possible to describe a general cognitive response pattern for women. Table 4 presents the classification matrix for sex.

Insert Table 4 about here

The question of whether cognitive responses were best patterned in terms of achievement domain or in terms of sex was answered by a simple comparison of the relative gain in accuracy of classification above chance levels. Classification in terms of achievement domain was significant for success, a gain of 16% over chance, and for failure, a gain of 24% over chance. Classification in terms of sex was not significantly better than chance on successful events, and resulted in an accuracy gain of only 9% on failure events. These results support the hypothesis that domain is more important in understanding cognitive patterns of achievement than sex per se. These results also suggest that cognitive patterns are more stereotyped in cases of failure.

Discussion

Statistical results and subject protocols supported initial contentions that a) previously reported sex differences are not universal, b) sex differences may be better understood by including several types of domain in the study of achievement, and c) affiliative and personal endeavors may be appropriately classed as forms of achievement. Collectively, these data provide empirical support for the theoretical position of Stein and Bailey (1973) and others. Fully thirty percent of subjects identified their experiences of success or failure as falling within personal or interpersonal achievement domains. Multivariate analyses revealed significant main effects for domain on both success and failure outcomes. Discriminant analyses further strengthened the contention that cognitive responses were more appropriately characterized in terms of domain than sex. Related experimental data also support the contention that different domains of achievement are associated with different belief structures and that this pattern of association represents a significant element for understanding achievement (Eccles, Adler, & Meece, 1984). However, sex x domain interactions in univariate analyses suggested that the influence of domain may have been more salient for women than men.

This discussion will focus on the interaction of sex and domain, the significance of outcome, and finally on the nature of achievement domain. Locus of standards for success and expectations regarding failure revealed significant sex x domain interactions. These results were particularly interesting because it was clear that the influence of achievement domain was evident only among women. Women seemed to be more sensitive to the unique characteristics of the three domains and adapted their responses accordingly. Two explanations for this result are posited.

The first involves social status and strategies adopted by minority groups to minimize status differences. One strategy of minority group members to enhance their social credibility and acceptance has been to adopt characteristics of the majority

group. In this case, we hypothesize women to occupy the role of minority status. Within personal and interpersonal domains (identified with traditional femininity) women may have acquiesced to social norms and expectations regarding feminine role standards. However, within the mastery domain women in this study may have been reacting to cognitive norms established by the dominant group, i.e., men. Consequently, women may have given responses they perceived as congruent with the masculine, and thus socially accepted, patterns. This explanation is further strengthened by the fact that men, members of the dominant group, did not adapt their responses to different domains. Instead, they generalized their response patterns from the more familiar mastery domain to the theoretically less familiar personal and interpersonal domains.

Another possible explanation is simply that women may develop a more complex achievement schemata than do men. In this study, women may have incorporated environmental cues and contextual variables as well as personal factors in their responses to the achievement situation. On the other hand, men may have developed a more simplified achievement schemata, allowing them to evaluate an achievement out of situational context, thus reacting to it as an incident independent of domain. A hypothetical sex difference in the balance between dispositional and situational elements in cognitive responses is consistent with earlier studies. Field dependency studies (Witkin, Dyk, Faterson, Goodenough, & Karp, 1962) suggest that men would tend to ignore environmental cues while women would incorporate such cues in their judgments. Whether the appropriate explanation lies in status differences or in schematic complexity or some composite of the two cannot be determined at this point.

Sex differences, domain effects, and interactions were significantly affected by outcome. Although this study had not predicted such effects, it was apparent that whether an achievement resulted in success or failure had distinct consequences for cognitive patterns. Successful outcomes had fairly divergent cognitive responses with few discernible patterns. Failure, however, provided a base for more systematic

responding. Two explanations are possible. One feature of protocols may have concerned the significance or importance of the remembered event. It is possible that success was a relatively common experience for these subjects and reports may have simply focused on the most recent successful event, regardless of its personal significance. Failure, on the other hannd, might have been an uncommon event and thus held greater psychological significance for subjects. Therefore, the effects of outcome may reflect subtle qualitative differences in expectations and psychological significance. Men in particular reported initially high expectations for the failures they recalled, suggesting that these events were recalled because they were atypical. A second explanation concerns the potential consequences of outcome for self-confidence. Success by its nature would tend to enchance self-confidence and security, allowing for more freedom to deviate from norms. Success provides a certain degree of idiosyncrasy credit, as it were. In contrast, failure would tend to provoke uncertainty, and subjects therefore may have adhered more closely to familiar sex- and domain-linked cognitions. Although it is not possible to choose between these explanations at this point, results do suggest that achievement research might well profit from greater attention to correlates and consequences of failure.

While we support the incorporation of domain into the study of achievement, one final caveat is necessary. The achievement domains identified here were not always distinct in the view of respondents; several subjects classified their achievement endeavors as encompassing more than one domain. One explanation is that domains defined here did not completely capture general categories of achievement recognized by the subjects. Another possibility is that domains of achievement cannot be discretely catalogued, and perhaps instead should be measured on several continuous and independent dimensions, e.g., the degree to which the endeavor reflected personal considerations, the degree to which it involved mastery, and so on.

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Table 1

Classification of Protocols

by Sex and Achievement Domain

	(N)	Achievement Domain: Personal	Interpersonal	Mastery
SUCCESS				
Women	(84)	(18) 21%	(19) 23%	(47) 56%
Men	(97)	(18) 19%	(8) 8%	(71) 73%
X^2,df2,=8.47 p <.02				
FAILURE				
Women	(94)	(16) 17%	(13) 14%	(65) 69%
Men	(100)	(12) 12%	(15) 15%	(73) 73%
X^2ns				

Table 2

Main Effect Means

for Sex and Domain[a]

	Locus of Standards	Conceptual Focus	Expectations
SUCCESS			
Sex			
Women	4.61	5.12	5.96
Men	4.62	4.73	6.24
Domain			
Personal	**3.20**	5.03	5.83
Interpersonal	**4.07**	5.85	5.58
Mastery	**5.11**	4.91	6.25
FAILURE			
Sex			
Women	4.13	5.75	**6.17**
Men	4.67	5.21	**6.90**
Domain			
Personal	**4.11**	**5.29**	6.03
Interpersonal	**3.52**	**4.57**	6.14
Mastery	**4.68**	**5.68**	6.85

a Numbers in bold type indicate a significant main effect based on univariate F ratio.

Table 3

Discriminant Classification of Achievement Domain As a Function of Locus of Standards, Conceptual Orientation, and Expectations

Actual Domain	N of cases	Predicted Domain: personal	interpersonal	mastery
SUCCESS				
personal	(34)	(20) 58.8%	(5) 14.7%	(9) 26.5%
interpersonal	(26)	(10) 38.5%	(10) 38.5%	(6) 23.1%
mastery	(117)	(35) 29.9%	(25) 21.4%	(57) 48.7%
percent of all cases correctly classified: 49% $X^2(6)=19.03$ $p < .01$				
FAILURE				
personal	(28)	(9) 32.1%	(6) 21.4%	(13) 46.4%
interpersonal	(25)	(4) 16.0%	(16) 64.0%	(5) 20.0%
mastery	(136)	(25) 18.4%	(29) 21.3%	(82) 60.3%
percent of all cases correctly classified: 57% $X^2(6)=17.83$ $p < .01$				

Table 4

Discriminant Classification of Sex as Predicted by Locus of Standards, Conceptual Orientation, and Expectations

actual sex	N of cases	predicted sex: female	predicted sex: male
SUCCESS			
female	(81)	(38) 46.9%	(43) 53.1%
male	(96)	(40) 41.7%	(56) 58.3%
percent of all cases correctly classified: 53% X^2 ns			
FAILURE			
female	(92)	(52) 56.6%	(40) 43.5%
male	(97)	(38) 39.2%	(59) 60.8%
precent of all cases correctly classified: 59% X^2, df4, =11.71 $p < .001$			

Figure Captions

Figure 1. Mean values of locus of standards within the success outcome (1=most internal; 9=most external).

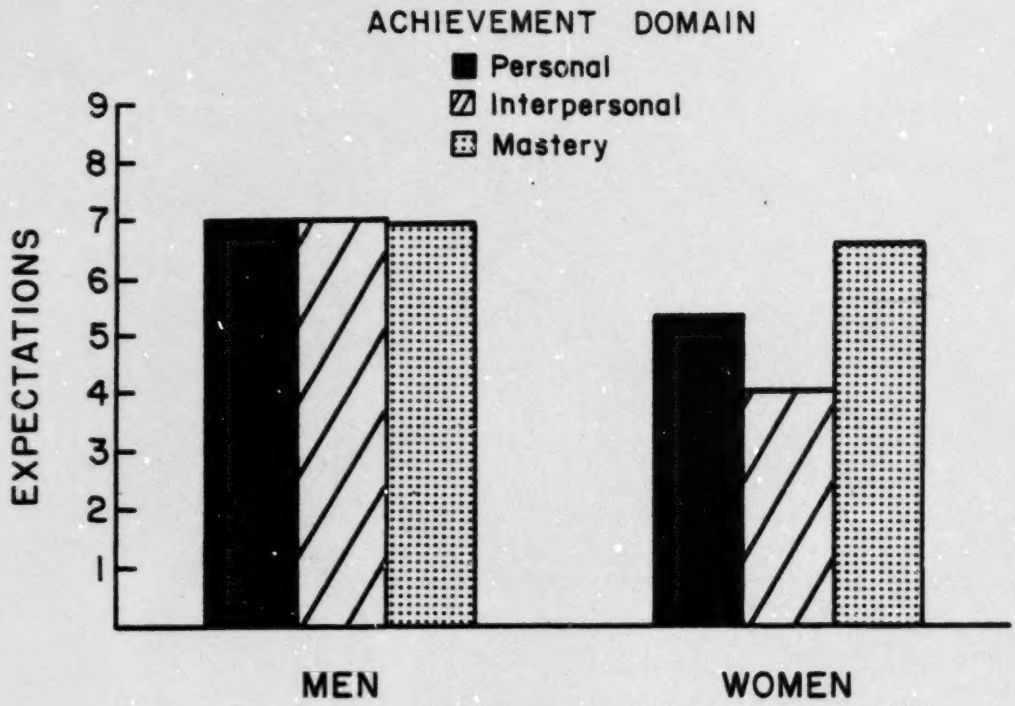
Figure 2. Mean values of expectations within the failure outcome (1=low; 9=high).

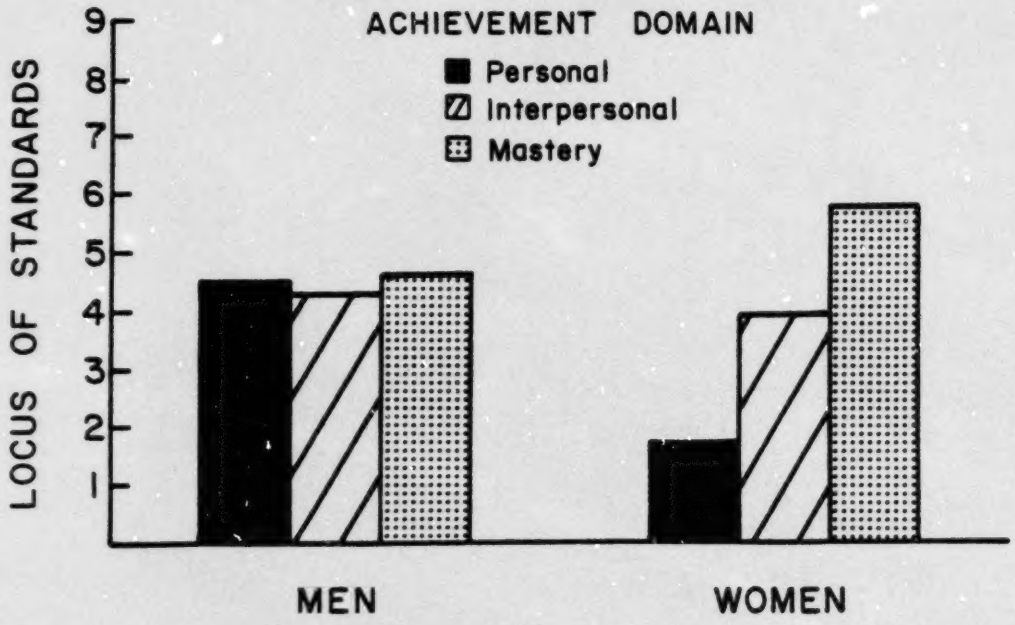
Footnotes

[1]The complete quote has been attributed to Grantland Rice, and eminent sportswriter, and is as follows:

> "For when the one great score comes
> To mark against your name--
> He writes, not that you won or lost
> But how you played the game."

[2]Analysis of causal attributions is the subject of another paper.


ACHIEVEMENT DOMAIN
Personal
Interpersonal
Mastery
EXPECTATIONS
9
8
7
6
5
4
3
2
1
MEN
WOMEN


ACHIEVEMENT DOMAIN
Personal
Interpersonal
Mastery
LOCUS OF STANDARDS
9
8
7
6
5
4
3
2
1
MEN
WOMEN